

7.6 Mortality and Longevity risks

Q77 Section 7.6 The design for Longevity risk in 2017 Field testing balances the need for a risk-sensitive approach and a practical design of the risk charge. Are there any changes to the current design and calibration of the Longevity stress that would significantly improve the reflection of the underlying risk in the ICS? If “yes”, please explain and provide examples and/or rationale to support the proposal.

Organisation	Jurisdiction	Confidential	Answer	Answer Comments
Canadian Institute of Actuaries	Canada	No	Yes	While the single stress for longevity combining both level and trend simplifies the calculation, it makes the calibration of this risk difficult to assess and ultimately reduces comparability of outcomes when comparing this risk across entities. We recommend that the specification of this risk revert back to the level and trend specification used in the 2016 field test.
China Banking and Insurance Regulatory Commission (CBIRC)	China	No	No	
European Insurance and Occupational Pensions Authority (EIOPA)	EIOPA	No	No	
Insurance Europe	Europe	No	No	
Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin)	Germany - BAFIN	No	No	

Global Federation of Insurance Associations	Global	No	No	
Dai-ichi Life Holdings, Inc.	Japan	No	No	
General Insurance Association of Japan	Japan	No	No	
The Life Insurance Association of Japan	Japan	No	No	
Financial Supervisory Service (FSS) & Financial Services Commission (FSC)	Korea (Republic of)	No	No	
Legal & General	UK	No	Yes	We would suggest that longevity and mortality risks would be more accurately captured through a combination of base and improver stresses, as this is more consistent with how these risks manifest in practice. We believe that the vast majority of modern longevity models (and a growing minority of mortality models) make significant use of improver stresses, and that in fact this would generally be the most material element of these models. Overall the longevity stress of 17.5% gives a reasonable outcome and if a trend stress were introduced we would expect this “base” stress to be reduced to compensate. We would be happy to engage in discussions regarding any reshaping of the stress.
Prudential Financial, Inc.	United States of America	No	Yes	Prudential Financial acknowledges the need to balance a risk-sensitive approach and a practical design of the risk charge. While reconciling the two presents a challenge, the ultimate solution must be conceptually sound and provide a reliable measure of risk for the IAIG’s the ICS is intended to apply to. We believe the key longevity risk for large insurers with credible experience is unexpected changes in the trend of mortality. Therefore, longevity risk is more appropriately captured through a stress on the trend component directly as opposed to a stress on base mortality.

				Since trend and base risk each manifest in different ways/rates for different products and populations, combining the two risks into one stress forces a disconnect between the true risk and the risk charge for one or both risks. An appropriate base risk stress would be materially lower than that of the 2018 Field Test. A primary driver of base risk is mis-estimation risk. Limited Fluctuation Credibility Theory, which is widely accepted and used throughout the U.S. insurance industry, can be used to show that approximately 3,100 claims are required in order for the estimate to be within 5% of the true mean at a 99.5% confidence level. Companies with significant, credible, homogeneous claims data will have this quantity of experience data and likely more. The 2018 stress represents an extreme deviation even if considering fluctuations for a single year; to then further suggest that the extreme experience would be repeated for all future years is excessive. Note that the above also applies to Mortality risk as the key mortality risk, aside from mortality calamity, is unexpected changes in trend.
National Association of Insurance Commissioners (NAIC)	USA, NAIC	No	Yes	The longevity stress is a composite stress combining level, trend and volatility. The optimal way to address these would be to look at each of these individually. There are academic studies that suggest that the trend stress is the most substantial of these and an alternative calibration with a trend stress and a substantially lower level stress may be a reasonable alternative. A trend stress was included in the 2016 field testing but that, superimposed on a significant level stress, led to a charge which was too large and the current combined stress of 17.5% was agreed as a compromise.

Q78 Section 7.6 Are there any further comments on Mortality and Longevity risk that the IAIS should consider in the development of ICS Version 2.0? If “yes”, please explain with sufficient detail and rationale.

Organisation	Jurisdiction	Confidential	Answer	Answer Comments
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CLHIA	Canada	No	Yes	We support the current simplified approach for Longevity risk rather than splitting the level and trend stresses. However, we question the relevance of the volatility component in Longevity risk. In general, we are unable to comment on the appropriateness of the factors without conducting any quantitative analysis.
China Banking and Insurance Regulatory Commission (CBIRC)	China	No	Yes	We suggest that the IAIS continue its current experience-data-collection exercise, set risk parameters based on the proper experience of each market if available, and update regularly when there is significant experience changes.
European Insurance and Occupational Pensions Authority (EIOPA)	EIOPA	No	Yes	We believe that a more granular approach to longevity risk where the capital charge is determined through a combination of a level and a trend stress does not justify the additional effort because the resulting additional risk sensitiveness would only be marginal.
Insurance Europe	Europe	No	Yes	Insurance Europe believes offsetting effects should be considered. Currently the shock is applied only to policies where an increase in mortality rates would lead to a decrease in the NAV (paragraph 528 of FT specifications). Insurance Europe believes it would be more appropriate if the shocks would also be applied to policies where an increase in mortality rates would lead to an increase in the NAV. Furthermore, capital charges for mortality and longevity should not be cumulative. It is highly unlikely that both shocks would materialise together. Therefore, Insurance Europe suggests adopting the maximum of mortality and longevity capital charges.
Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin)	Germany - BAFIN	No	Yes	We believe that a more granular approach to longevity risk where the capital charge is determined through a combination of a level and a trend stress does not justify the additional effort because the resulting additional risk sensitiveness would only be marginal.
Global Federation of Insurance Associations	Global	No	No	
Dai-ichi Life Holdings, Inc.	Japan	No	Yes	The stress level should be determined for each jurisdiction based on data submitted by volunteer groups. Although we submitted data, the calibration result is too high compared to our internal model.

				Our company is large in size compared to ordinary insurance companies, and our business focuses mainly on protection. We believe that the fact that risk diversification is more effective due to Low of Large Numbers is not reflected in the current ICS proposal, but we have not been able to propose specific improvement plan to IAIS because the method of calibration by IAIS is not shared. The calibration method should be disclosed and constructive discussions should be promoted.
General Insurance Association of Japan	Japan	No	No	
The Life Insurance Association of Japan	Japan	No	Yes	• The LIAJ heard Japanese life insurers (Volunteer Groups) have submitted the additional data for calibration and the LIAJ would like the IAIS to set stress level by individual region basis based on the additional data submitted by the Volunteer Groups. The LIAJ believes the current level of the calibration is overly high compared to their internal models. • Volunteer Groups in Japan are relatively larger in terms of size and their business mainly focus mainly on offering protections. It does not seem to reflect strong effects of the risk diversification by the law of large numbers. However, insurers have not been able to make concrete proposals for the improvement due to the calibration methods in the IAIS is not shared with insurers.. • In order to raise shared awareness, the LIAJ urge the IAIS to share calibration method with stakeholders and pursue constructive discussions among stakeholders.
Financial Supervisory Service (FSS) & Financial Services Commission (FSC)	Korea (Republic of)	No	No	
The Life Insurance Association of the Republic of China	CHINESE TAIPEI	No	Yes	☐ We suggest applying grading shock mechanism or scaling factor mechanism similar to the design of 2016FT Health risk with the floor being removed. 1. It is stated in B56 and B57 in IFRS 17 that the assumption of current estimate is not necessary to be made by the most-recent experience. If there is substantial change on the

				experience, one should analyze and investigate the reasons for the change in the experience and make assumption based on both the previous and most-recent experience. That is, if the updated experience shows significant change, both the most recent and previous experience together should be considered and hence the most recent one might not be fully reflected in the new assumption. 2. The VaR 99.5% shock over the lifetime might overstate the risk but over the first year might underestimate on the other hand. We propose two methods to address this issue: 1) We suggest applying grading shock level mechanism. (E.g. if the company uses 5-year average of actual experience as assumption, the original shock is 12.5% and 2.5% at 2nd year and thereafter) 2) Referencing to the 2016FT Health risk design, one can find that the scaling factor seems to translate the 1-year VaR shock level into the lifetime shock level. We then suggest such design being introduced to the mortality risk with the floor of scaling factor being removed.
Legal & General	UK	No	No	We are broadly comfortable with the calibration of these risks from the 2018 field testing.
Prudential Financial, Inc.	United States of America	No	Yes	Prudential Financial understands that some companies may have challenges modeling a stress on mortality improvement directly; however, the ICS should not be developed in a manner that penalizes companies with robust risk management and modeling capabilities by forcing a risk-insensitive one-size-fits-all stress upon them or risk inappropriately measuring mortality and longevity risk by using overly simplified methods. Concerns that some companies cannot model a trend stress may be better addressed through the development of an alternative equivalent stress for such companies if mortality/longevity trend risks aren't key exposures for such companies. Discrepancies between the actual longevity risk and their risk charges can have material adverse consequences on product availability and/or price, insurer risk-selection, and insurer capitalization. Under a base stress only approach, products targeted towards younger populations could be undercapitalized; conversely, products targeted for older populations

				could be subject to a risk charge that is outsized relative to the risk. Continuing to use a base only approach is risk-insensitive and will have unintended consequences that contravene the IAIS's goals of promoting effective and globally consistent supervision of the insurance industry and developing / maintaining fair, safe, and stable insurance markets for the benefit and protection of policyholders.
MetLife, Inc	USA	No	Yes	There is insufficient recognition of geographic diversification in the ICS which assumes common stresses impact all jurisdictions simultaneously and may be a consequence of a focus on local or regional vs global experience which does not bear this out. While some steps have been taken to address the situation for interest rate and equity risk, geographical diversification continues to be inadequate across and within different risk types and penalizes IAIGs important efforts to diversify risk. We recommend the ICS adopt a more granular approach to geographical and allow for geographical diversification within equity, lapse, mortality, morbidity and operational risk. A more granular approach to geographical diversification could be accomplished by creating a diversification matrix that not only diversifies across risks but also regions. Each risk type that exists within each region would have a different correlation coefficient that would indicate the correlation or lack of correlation of a particular risk charge in one area against another in addition to the correlation of one risk type vs another. This would afford diversification within and across risks and would address the fact that experience shows that when losses resulting from exposure to a particular risk happen in one location, those same losses do not occur everywhere else in the globe at the same time as is implied by the current ICS diversification framework.
National Association of Insurance Commissioners (NAIC)	USA, NAIC	No	Yes	The mortality and longevity stresses are currently the same for all jurisdictions. There is evidence that the mortality and longevity stresses should vary by jurisdiction. This experience is not, however, conclusive for the IAIG population. The IAIS is conducting a study which may provide sufficient credibility to allow some justification for differentiation by region or jurisdiction.

Actuarial Institute of Chinese Taipei, AICT	Chinese Taipei	No	Yes	We suggest applying grading shock mechanism or scaling factor mechanism similar to the design of 2016FT Health risk with the floor being removed. It is stated in B56 and B57 in IFRS 17 that the assumption of current estimate is not necessary to be made by the most-recent experience. If there is substantial change on the experience, one should analyze and investigate the reasons for the change in the experience and make assumption based on both the previous and most-recent experience. That is, if the updated experience shows significant change, both the most recent and previous experience together should be considered and hence the most recent one might not be fully reflected in the new assumption. The VaR 99.5% shock over the lifetime might overstate the risk but over the first year might underestimate on the other hand. There are two measures that can produce a more balanced result: 1. Applying grading shock level mechanism. (E.g. if the company uses 5-year average of actual experience as assumption, the original shock is 12.5% and 2.5% at 2nd year and thereafter) 2. Referencing to the 2016FT Health risk design, one can find that the scaling factor seems to translate the 1-year VaR shock level into the lifetime shock level. We propose the introduction of this mechanism into the mortality risk with the floor of scaling factor being removed.
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